

EGU21-15545

<https://doi.org/10.5194/egusphere-egu21-15545>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



## Spatial distribution of water-mobilizable colloids and phosphorus from dam reservoir sediment

**Ngoc Diep Nguyen**, Malgorzata Grybos, Marion Rabiet, and Véronique Deluchat

University of Limoges, PEIRENE EA 7500, Faculty of Science and Technologies, France (ngoc-diep.nguyen@unilim.fr)

The hydrodynamics of dam reservoirs favor the accumulation of phosphorus (P) in bottom sediments since it has a strong affinity for the sedimentary particles. However mechanical disturbance of sediment (resuspension) may release P back to water column. The load of sedimentary P poses a serious ecological problem related to the maintaining of water eutrophication. The aim of this study was to evaluate the potential of sediments, accumulated in Champsanglard reservoir (Central France), to release water-mobilizable colloidal and dissolved P. A sampling campaign was carried out at different locations along the main channel of reservoir from riverine to lacustrine area and characterized by different hydrodynamics. The results showed that colloids are intrinsic component of reservoir sediment and contribute up to 2.3% of sediment mass. Colloidal P attributed up to 6% of total sedimentary P and 80% of water-mobilizable P (fraction < 1  $\mu\text{m}$ ). The stock of water-mobilizable colloids and associated P varied according to particle size distribution and was strongly dependent to channel morphology, hydrodynamics and inlet of tributary.

**Keywords:** Dam reservoir, sedimentary colloids, phosphorus form, spatial variability